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In intellectual development the inhabitants of that hapless world had advanced far beyond the inhabitants of our earth. Their mastery over the forces of nature was not confined to harnessing steam and lightning, producing what practically amount to new species of both plants and animals, bringing down the rain at pleasure, or such small matters. They sailed the air as we sail the ocean; they made rivers, seas, harbors, islands, mountains, valleys, when and where they pleased; if a coast-line was not to their fancy, they changed it; if a continent was too large, they reduced it; if too small, they enlarged it; deserts, steppes, and vast marshes they transformed to blooming gardens and fruitful fields. In short, they dethroned nature and usurped her proud sovereignty. But at last their vaulting ambition o'erleapt itself.

Some daring De-Lesseps-and-Edison-in-one, of that highly-developed race, conceived the magnificent project of tunnelling the planet, and thus achieving the *ne plus ultra* of rapid transit between the antipodes. In Apolleia no scheme was so daring, so impious, as to be "ahead of the times." The new idea was welcomed with enthusiasm and delight. The grand engineering operations began. Gigantic machines ripped and tore into the bowels of the planet; floods of chemicals dissolved soil and rock with equal potency. The work was rapidly approaching completion when—

Apolleia was no more!

Now, though plain, matter-of-fact science repudiates the fascinating theory that the asteroids are the fragments of an exploded planet, the pretty story built upon that theory is not without its practical suggestions.

Rapid progress involves a corresponding shortening of processes. The child who ardently wishes he were lifted at once to the plane of full manhood simply yearns for a closer proximity to death.

For long years the century-plant grows slowly, unfolding frond by frond with monotonous regularity. All at once it awakens to tremendous action. The vitality which has been accumulating during all those decades suddenly leaps forth. Hours do the work of years. A tree-like stalk shoots up into the air, blossoms luxuriantly, and—presto—the splendid plant is dead! That green tower was its Babel: after it the deluge.

For unknown ages the earth was a seed unplanted. For unknown ages it germinated and grew. For a few short hundreds or thousands of centuries mankind, its tower of strength and vitality, has been rising. These last years are outdoing the work of previous ages.

Is the earth approaching the period of its luxuriant blossoming?

Is the story of Apolleia a prophecy?

EDWARD P. JACKSON.

ARITHMETIC AND THE BACCARAT CASE.

I SEE it announced that Sir William Gordon Cumming may be expected to visit the United States shortly. Doubtless this will revive the interest of Americans in a recent trial as to the results of which no slight differences of opinion seem to exist in England. Permit me, therefore, to point out one aspect of this curious case which seems to have escaped attention. I mean the coldly arithmetical aspect of the now historic game of baccarat played at Tranby Croft.

These games were played for money. The surest way—indeed, the only sure way—to ascertain whether they were fairly or unfairly played, obviously

was to look into the financial results of the games. If an arithmetical inquiry shows that one or another player left off with more or less winnings than for the number and amount of his stakes he was honestly entitled to have, fraud would have to be inferred; but it could only be proved after it had been defined, and it could only be defined after a rigid analysis of the games, stakes, and winnings. The tableaux (or statements of each player's operations) of the two nights alone could make this analysis possible, with the number of events (an "event" being a completed "hand"), the surplus of winnings, and the average stakes of the players. Applying to these tableaux this analysis, we should have had the *corpus delicti*. As it was, the whole proceedings from beginning to end were like an inquiry as to the guilt of a murderer before the fact was fully established that a murder had been committed! What is the tale of Tranby Croft as it was actually worked out and left at the close of the trial from the point of view of arithmetic and of the laws of evidence?

Sir William Gordon Cumming, playing baccarat at the same table with young Mr. Wilson for two consecutive nights (the Prince of Wales being dealer, and therefore playing against Wilson and Sir William), left off, after a series of thirteen events, with £225 of winnings, of which £75, we are told, was due, not to winnings on the table of Sir William and Wilson, but to "by-bets" on the other tables. This gives £150 as the amount won and held by Sir William as the outcome of thirteen "events" at the Wilson-Cumming table. Five reputable persons, out of a larger number present and looking on, state, and, it is admitted, sincerely believe, that during these games they, among them, saw Sir William on thirteen occasions, by four different methods, add to his stake after an event. They also state that these additions amounted in all to £105. No two of these five persons, however, state that they saw the same act of addition on his part. The Prince, who was the banker throughout, and therefore held to protect his own stakes, does not state that he saw any fraud on any one of these thirteen occasions; nor does any other person present, except the afore-mentioned five, state that he or she saw any.

Mr. Wilson, one of the five persons who state that they saw Sir William add to his stakes, staked on the same cards with Sir William at the same table. He states that, playing low, he left off with £50 or £60 to the good. He states that Sir William, playing higher, left off—honestly or dishonestly—with £150 to the good.

Therefore the proportion between the stakes of Mr. Wilson and Sir William must be the proportion between their winnings, and there must be for each an average stake. This is not a question of eyesight, but of arithmetic. If in the thirteen instances of alleged cheating the original stake of Sir William was £5, he must have honestly won £65. But by adding £105 of alleged fraudulent additions to £65 we do not get £150; and if we accept Mr. Wilson's statement that *his* winnings were from £50 to £60, it is impossible to work out an average stake for him from £1 up to £5 which will avoid the discrepancy. Nor are we helped by Mr. Wilson's further statement that he "saw but cannot specify" other cheating. If he did, every counter added would make the discrepancy wider between what Sir William on the hypothesis of cheating must have had and what upon the evidence he did have. In a play of three or four hours a certain number of events must have happened with a surplus of winnings for Sir William and Mr. Wilson to put Mr. Wilson from £50 to £60 to the good.

If the average stake of Wilson was £2, the surplus of winnings was £26. If the average stake of Sir William was £5, he could not, as we find he said to the Prince, showing his tableau, help winning. He must have won from £125 to £150. The known winnings of Sir William, £65, must be reduced to £45 to make the allegation that he fraudulently added £105 tally with the £150 we are told he actually had. To reduce the £65 to £45, the times the table won must be reduced from thirteen, as testified by Wilson, to nine. But then nine surplus winnings will not account for the £50 to £60 which, we are told, Wilson had! If before or after the thirteen specified instances Sir William played the *coup de trois*, he either lost or won on the aggregate of the *coups*. If he lost, Mr. Wilson could not win, nor could his £50 to £60 be accounted for. If he won, Sir William must have had more than £65. If he stood even, the position was unchanged. Given Mr. Wilson with a lower stake, who comes out with from £50 to £60, Sir William with a higher stake, who comes out with £150, and given Sir William's thirteen admitted stakes of £5 each admittedly winning £65, it is arithmetically impossible so to construct the game as that £105 out of £150 shall be the product of cheating, because the surplus winnings of the table must be exactly thirteen, or more or less. If more, Sir William honestly wins more; if exactly thirteen, or less, Wilson cannot win from £50 to £60.

These are the arithmetical difficulties which have occurred to me in connection with this strange story, and which I give for what they are worth.

ARITHMETICIAN.

THE FALLACY OF PATRIOTISM.

BY POPULAR judgment, patriotism is considered a primary virtue, of the same value as truth and honesty; and so well is this view established that few attempt to reason on the subject, and to doubt it is generally to invite contempt or abuse.

The virtue is asserted, not proved. The child is taught to shout with delight when the flag is raised, to exalt the form of government under which he was born, and to overlook serious faults both in its formation and in its administration. The peculiar genius of our people also causes the bosom to swell with patriotic pride; and we exult in the contemplation of our natural resources and beauties. Foreign nations may well be despised, their people graded as parvenus or trash, their government held in contempt; and while it may not be possible to dispute that they have some natural beauties, it must not be admitted that nature elsewhere can compare with the domestic article. That would be unpatriotic.

Patriotism is like dogmatism in religion. The latter claims absolute truth, with none existing apart from its teachings; while patriotism is a blind admiration for one's own surroundings, and a denial of the possibility of equal good existing elsewhere.

The claim that patriotism is a virtue would be difficult to maintain. Virtue is moral excellence, and while it might, perhaps, be shown that patriotism, under certain conditions, has some merit, it would be hard to satisfy a thinking man that the love of one's native land has any connection with the practice of goodness or the possession of morality. If it were possible, it would be still more difficult to show how an Englishman could display any particular morality by being a patriotic Briton one year, and display the